Learning Styles of the Health Services Management Students: a Study of First-year Students from the Medical Science Universities of Iran

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Abstract: Introduction: There are different methods for classifying learning styles; one of the most prevalent methods is one based on the sensory modality the people use for internalization of the information. The aim of this study was to determine the learning styles of the first-year students of the health services management discipline from the medical science universities of Iran during the school year of 2010 using VARK tool. Methods: Some 180 health services management students of the medical science universities of Iran were surveyed in a descriptive study. Data collection was performed using VARK learning styles standard questionnaire, based on which the visual, aural, read/write and kinesthetic styles were determined. The data were analyzed using the SPSS version 16 and VARK software, designed in Microsoft Excel environment. Results: From a total of 180 students under study, 137 students (76.1%) were girls,. Besides, 152 students (84.4%) studied at undergraduate level, and 28 students (15.6%) studied at postgraduate levels. Only 74 students (41%) preferred the single-modal learning style, while most of the students, that is, 106 students (59%) preferred using the multi-modal learning style. A significant relationship was found between the performance of the students in the course and the single-modal and the multi-modal learning styles (p<0.04) as well as between the education status and the multi-modal learning styles (p<0.05). Conclusion: Majority of the students preferred the read/write and aural styles for acquiring information. Knowledge of the learning styles of the learners is a valuable skill in education which helps the instructor to better present the information and assist the learner for a more effective learning.

Key words: learning styles, education, learning environment, education, VARK, health services management students, Iran.

INTRODUCTION

There are various elements that influence students’ learning, recognition of which would significantly help to identify and remove learning problems and tackle current flaws in the education system. Learning style is one of those elements (Azizi, Khazandeh A, and Hosseini, 2001) which influences the learning capability of students. A reason why some students fail to learn the course materials despite having very competent instructors may lie in the fact that the students have different learning styles (McLeod, 2005); that is, they acquire and process information according to their individual characteristics and using various methods including visual, aural, reaction and action, thought, analysis, and imagination ones (Mills, 2002).

Therefore, the instructors should be aware of students’ different learning styles and should know that the learning styles would change proportional to the changes of the learning environment, subject material and the educational methods (Seif, 2006).

Numerous methods exist for determining the learning styles, the newest and most perceptible of which is the VARK Learning Styles Questionnaire. The questionnaire was first compiled by Fleming in 1998 in Lincoln University of New Zealand.

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The VARK learning pattern is based on three following principles: 1) All students are capable of learning university lessons, but everyone has his own method; 2) When due attention is given to the specific method of an individual learner, the motivation for learning is heightened in him; 3) The educational concepts are best learned through benefiting from the power of senses and different perceptions (Seif, 2006). According to this attitude, the human being acquires the peripheral knowledge through four channels: the Visual (V), Aural (A), Read/write (R), and Kinesthetic (K) channels (Alkhasawneh, Mrayyan, Docherty, Alashram, & Yousef, 2008). In other words, the students learn through experience, imagination, thought, and exercise during the education process (Boyle, Duffy, and Dunleavy, 2003).

The VARK approach categorizes the students into 4 categories according to the interaction and response method they use in a learning environment:

1. **Visual (V):**
   The group of learners who learn better through seeing and visual representation of the educational subjects (graphs, figures, pictures) accompanied with more description.

2. **Aural (A):**
   The group of learners who learn better through listening and oral education (lectures, description).

3. **Read/write (R):**
   Those of learners who can learn better if they take notes during the lectures or reading texts or printed materials.

4. **Kinesthetic (K):**
   The group of the learners who learn better when they personally perform practical and experimental manipulation of the educational objects through a physical procedure (Fleming, 2004).

Several studies have been conducted globally on different learning styles of students, indicating the importance of learners’ categories. Bouldin and Myers in their research on 221 pharmacology students of the Mississippi University showed that most of the students preferred multi-modal style of learning, and the least number of students preferred single-modal style of learning (using only one specific style of learning) (Bouldin and Myers, 2001). Alkhasawneh *et al.* (2008) who surveyed the learning styles of 92 university students in Jordan country, found out that before teaching the problem based learning approach, the read/write and Kinesthetic learning styles were preferred by the learners, whereas the predominant style of learning is changed to multi-modal style after they were taught about the said approach. In another study, Byrne and Pahl (2002) investigated the learning styles of 31 students studying electronics in Dublin University and discovered that the students’ preferred learning styles were the Kinesthetic, multi-modal, aural, read/write and visual styles, respectively.

Although there has been some researches in Iran on students’ learning styles, but they have been often based on the Kolb LSI learning styles approach, and only few studies have been performed using the VARK questionnaire. Therefore, this research aim to determine the preferred learning styles of the first-year students of the health services management discipline in the medical science universities of Iran using VARK tool.

**Method:**

The research statistical society of this research included some 250 first-year students of the health services management discipline of the medical science universities of Iran during the school year of (2009-2010), among which 180 students took part in the research by filling out the questionnaire. It's worth mentioning that only 10 out of all medical sciences universities of Iran enroll students for studying health services management discipline. A two-part questionnaire was used for gathering data. The first part of the questionnaire asked the demographic questions such as respondent’s gender, major, education average score, etc. The second part of the questionnaire which was designed to determine the learning styles of the students, included the VARK standard, taken from the book “How Do I Learn Best?” by Fleming (Fleming, 2009). Based on the VARK questionnaire, the visual, aural, read/write and Kinesthetic learning styles of the students were determined. The questionnaire consisted of 13 questions, each of which requiring the learner to presume oneself in a different situation and choose one’s closest response to that situation from among the presented options. In other words, the learners were asked what they would do if they were put in a specific situation. The learners could choose one, two, three and even four of the options.
Choosing more options was indicative of the various styles the respondent used for learning. To avoid any confusion, the necessary information on how to fill up the questionnaire was given to the respondents, before completing the questionnaire. The collected data were analyzed using the VARK software in Microsoft Excel environment and the SPSS Software Version 16.

**Findings:**

From a total of 180 students under study, some 137 students (76.1%) were girls, while the remaining 92 (23.9%) were boys. A number of 152 students (84.4%) studied at undergraduate level, and 28 students (15.6%) studied at postgraduate levels. Overall, 74 students (41.1%) preferred the single-modal and 106 students (58.9%) preferred using the multi-modal learning styles (Graph 1). Among the students who preferred only one learning style, 32 students (1817.8%) preferred read/write, 25 students (1413.9%) preferred aural, and 11 students (6.1%) preferred kinesthetic styles, that is, they preferred employing all the senses including listening, smelling, tasting and seeing; synoptically known as the kinesthetic group. Finally, only 6 students (3.3%) reported visual style (i.e. through observing the figures, charts and flow diagrams) as their predominant learning styles as per the VARK questionnaire (Graph 2).

Among the students preferring more than one learning style (n=106), a number of 40 students (22%) preferred bi-modal, 21 students (12%) preferring tri-modal and 45 students (25%) preferred quad-modal learning styles (Graph 3).

The students’ preferences for using bi-modal, tri-modal or quad-modal learning styles have been represented, indicating that the VARK, AR and ARK styles have assigned the highest percentage to themselves with 25.4%, 8.2% and 7.7% respectively (Graph 4).

From total number of the students who used tri-modal learning style (21 students), 14 students (7.7%) preferred a combination of “aural, read/write and Kinesthetic” (ARK) learning styles, 3 students (1.8%) used a combination including “visual, aural, and Kinesthetic” (VAK) learning styles, 2 students (1.2%) used a combination of “visual, read/write and Kinesthetic” (VRK) learning styles and finally 2 students (1.2%) preferred a combination of “visual, aural, and read/write” (VAR) learning styles.

Most of the students who used bi-modal learning style (15 out of 40 students) preferred a combination of “aural, read/write” (AR) learning styles, 10 students (5.3%) used a combination including “aural and Kinesthetic” (AK) learning styles, 6 students (2.9%) used a combination including “read/write and Kinesthetic” (RK) learning styles, 4 students (2.3%) preferred a combination of “read/write and visual” (RV) learning styles, 3 students (1.8%) used a combination including “aural and visual”, and finally 2 students (1.2%) favored the use of “visual and kinesthetic” (VK) learning styles.

A significant relationship was found between the Course performance of the students based on the single-modal and the multi-modal learning styles (p<0.04) as well as between education status and the multi-modal learning styles (p<0.05).

**Graph 1:** Overall distribution of the learning styles (Figures have been rounded).

**Graph 2:** Distribution percentage of the single-modal learning styles (Figures have been rounded).
Discussion:

One of the primary objectives and role of educational institutes is to provide students with quality education, values, knowledge and skills (Nejati, Jamali, and Nejati, 2009), therefore it is imperative to determine students’ various educational needs and learning styles, because they have different educational needs and grasp knowledge differently. Determining With the exponential growth in world's knowledge and information resources (Mrvac, Tomisa, and Milkovic, 2010), determining the learning style of the students is an important step valuable skill in the education setting which will greatly help the instructor in finding and resolving the learning problems of the learners and ensuring that the learners acquire the required knowledge. Besides, it will help the students in choosing a better method to study and thereby learn more effectively (Cooper, 2007; Fleming and Mills, 1992), even when no appropriate instruction is available. This study has applied the VARK questionnaire, as one of the reliable ways for determining the learning styles of the learners. The strength of VARK is in the fact that it helps to reveal the students’ learning capacity. The VARK philosophy creates the idea that everyone can learn if his/her preferences are taken into account (Wehrwein, Lujan, and DiCarlo, 2007). Knowing the learning style of the learners could: 1) be an stimulus for the instructor to shift from his selected teaching style towards the selected preferred learning style of the learner; 2) help the instructor to overcome the tendency for having all the learners of a group (i.e. students of a class) to be inclined towards one single learning style; 3) be helpful in improving the teaching structure by inclination towards the individual selected styles of the learners; 4) be effective in appropriate development of the education approaches. This research studied 180 first-year students of the health services management discipline in the medical science universities of Iran during the school year of 2009-2010. Results showed that about 41% of the respondents preferred the single-modal learning style; that is, their predominant learning style was one of the visual, aural, read/write or Kinesthetic styles.

The group of students who preferred multi-modal style was comprised of 22% bi-modal, 12% tri-modal and 25% quad-modal learners. This finding is consistent with the studies conducted by Dinakar, Adams, Brimer, and Silva (2005), and Murphy, Gray, Straja, and Bogert (2004) who used VARK questionnaire for determining the learning styles.

To mention some other relevant researches, in a study carried out on the Australian nursing students, it was seen that 16% of the students preferred quad-modal, whereas 46% preferred single-modal learning styles (Meehan-Andrews, 2009). In another study done about the learning styles of the first-year students of the medicine discipline in Michigan, it was found out that 43.4% of the students were in favor of quad-modal learning style, while 36.1% of them preferred single-modal learning styles (Lujan and DiCarlo 2006a).
Nevertheless in our study, the frequency of students preferring the quad-modal and the single-modal learning styles were 25% and 41% respectively. In another study by Oravcová (2009), she found out that the majority of the respondents preferred the activist learning style, which referred to their willingness to be involved in action and experience new things. Those students favored experiential learning and active creative problem solving. Studies carried out by Liu and Ginther among the American students showed that about 20-30% of them preferred aural, 40% preferred visual, and 30-40% preferred read/write and Kinesthetic learning styles or a combination of the two (Liu and Ginther, 1999). Wehrwein, Lujan and DiCarlo (2007) in their study investigated the gender difference effect on the learning style preferences among the physiology students. About 54.2% of the female and 12.5% of the male students preferred only one learning style; while 48.5% of the female and 87.5% of the male students preferred a combination of several learning styles. In short, most of the male students preferred multi-modal learning styles, whereas the majority of female students were inclined to use single-modal learning style with Kinesthetic (K) inclination (Wehrwein, Lujan, and DiCarlo, 2007). Dicarlo and Lujan in their study about evaluation of the first-year medical students’ learning styles showed that 36.1% of the students preferred a single-modal, while 63.8% preferred a multi-modal learning style (Lujan and DiCarlo, 2006a). In another study by Baykan and Nacar investigating the first-year medical students learning styles using the VARK questionnaire, it was found out that 36.1% of the students preferred single-modal and 63.9% preferred multi-modal learning styles. Besides, from total of the students under study, 23.3% preferred the Kinesthetic (K) style, 7.7% preferred the Aural (A) style, 3.2% preferred the Visual (V) style, and 1.9% preferred the Read/write (R) style of learning. In addition, from the total of the students with multi-modal learning style (63.9 %), some 30.3% preferred bi-modal, 20.7% preferred tri-modal and 12.9% preferred quad-modal learning styles. Statistically no significant relationship was found between the gender and the first term average scores of the students and their learning styles (Baykan and Nacar, 2007). Students with multi-modal learning style prefer to acquire information through different forms. This category of students does not learn just through a simple method in the classroom, that is simply by listening to the instructor and memorizing the presented material (Lujan and DiCarlo, 2006b). In order to benefit from a desirable and pleasant learning, these type of students are to speak and write about what they are learning, and relate the material to their previous experiences and knowledge as well as applying it into their normal life (Cortright, 2005). It must be emphasized that based on prior research, students remember only 20% of what they read, 30% of what they hear, 40% of what they see, 50% of what they say, and 60% of what they do. This value is increased to 90% for those who simultaneously say, hear, see, and do (Newcastle, 2007).

Conclusion:

A large number of previous studies (i.e. Bonwell and Eison, 1991; Cortright, Collins, and DiCarlo, 2005; Lujan and DiCarlo, 2006a, b) show that students learn better through using active learning strategies, as those strategies meet the needs of different learners. Active learning strategies promote thinking through reasoning and improving the problem solution solving, as well as decision making skills of the learners. It can also polish the students’ critical reasoning capabilities which would benefit not only the student in exploring new knowledge horizons, but would also contribute to the universities in thinking out of the box and having a holistic multi-disciplinary view at the issues and better meet the roles of future universities. The active learning strategies can also be employed in large classrooms. Class discussions, shared learning skills, role playing, simulation, models, arguments and games are active learning strategies suitable for using in large classrooms. Such activities also promote group/team work and create high levels of motivation and interest. For the management students who consider teamwork as a priority and value, such experiences are invaluable. Nowadays, there is a growing interest among people throughout the world to pursue knowledge through different means, from normal class and lectures, to continuing education, online interactions and etc. (Sehic, Rizvic, and Tih, 2010 Sehic, Rizvic, and Tih, 2010). As such, use of modern technologies (such as online discussions and online conferences) can also be applied to facilitate knowledge sharing among researchers and scholars worldwide and boost learning opportunities. This study has investigated the learning styles of the first-year students of the health services management discipline studying in the medical science universities of Iran, and found out that the majority of the students preferred the read/write and aural styles for acquiring information. The findings of the research are noteworthy, as they can influence the strategies for education planning in the institutes of higher learning. It is recommended that measures are taken by the university authorities as regards to determining the prevalence learning styles of the students from the very stage of entrance into the universities using the method applied in this paper or other similar methods, considering students’ major.
The results gathered then must be given to the education department of the faculties, education groups and tutors, so that they apply suitable teaching methods based on the preference of the students, so that better educational outcomes are achieved.

REFERENCES


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